



MOVE International Conference

Museum Environments: Challenges and Opportunities (MECO)

December, 14-15, 2021



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Day 1

Tuesday 14 December 2021

Day 1 Online Link

https://teams.microsoft.com/l/meetup-join/19%3ameeting_NjlhZDAzZWetMzExOS00MmUwLThtOTQtZjZhMWM2Njc3NjQ3%40thread.v2/0?context=%7b%22Tid%22%3a%22ad2a8324-bef7-46a8-adb4-fe51b6613b24%22%2c%22Oid%22%3a%229a2767cf-5bef-4073-9fe2-59d495252e0e%22%7d

Opening Session: Chairman Speech

Professor Dr. Omar Elhusseiny
Dean of Faculty of Engineering – Ain Shams University 09:45 – 9:50 am

Keynote Speaker - Session 01

Session Moderator **Professor Dr. Mostafa Refat**

• Keynote Speech

Professor Dr. Mamdouh Mohamed Eldamaty
Title: *"The Grand Egyptian Museum and the Future of the Cairo Museum Collection"* 10:00 – 10:45 am

Break 10:45 – 11:00 am

The Social Role of Museums and The Art of Displays – Session 02

Session Moderators **Professor Dr. Ghada Farouk and Associate Prof. Dr. Ashraf Nessim**

• Papers Presentations

Paper 19.	Regina Faden , "Building a Sustainable Tourism Infrastructure In a Geographic Cul-de-Sac".	11:00 – 12:00 pm
Paper 28.	Mark Watson, Avani Varia and Sanmitra Chitte , "Experience economy and Museum Development in India".	
Paper 14.	Ibrahim Mohamed Ali , "Innovative display and storage methods for glass negative collections".	
Paper 12.	David Thickett, Paul Lankester, Melissa King and Antanas Melinis , "Simple, Accessible Modelling for Showcase Performance".	
Paper 13	Dalia Hafiz , "Successful Museums: A comparative analysis framework to Enhance the Museum's Visitors' Experience".	

Break 12:00 – 12:30 pm



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Keynote Speaker - Session 03

Session Moderator **Dr Brett Martinson**

• Keynote Speech

Mr. Boris Pretzek

Title: “From Theory to Impact: A Brief History of Measuring, Monitoring, and Interpreting Museum Environments and Their Impacts on Collections.”

12:30 – 1:15 pm

Break 1:15 – 1:30 pm

Environmental Control for Objects and Visitors – Session 04

Session Moderators **Professor Dr. Morad Abd El Kader and Professor Dr. Ahmed Atef**

• Papers Presentations

- | | |
|-----------|--|
| Paper 03. | Hisham Elkadi , “Museums’ D-Light”. |
| Paper 06. | Zeynep Aygen , “Visitor Comfort versus Conservation Principles: Converting Historic Buildings to Museums: Case Study Turkey”. |
| Paper 18 | Inji Kenawy and Karen Fielder , “Objects’ preservation and visitors’ thermal comfort within museums”. |
| Paper 21 | Mohamed El Adl , “Indoor Air pollutants in Museums: Identification and Impact on Artefacts”. |
| Paper 25 | Sura Al-Maiyah and Karen Fielder , “The Complexity of Daylighting Design Practice in Museum Environments” |

1:30 – 2:30 pm

Break 2:30 – 3:00 pm

Virtual Museums – Session 05

Session Moderator **Professor Dr. Hanan Sabry**

• Keynote Speech

Professor Dr. Tamer Elnady

Title: “Online Virtual Museums: Capture and Display”

3:00 – 3:45 pm

• Discussion

3:45 – 4:00 pm

End of Day 1



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Day 2

Wednesday 15 December 2021

Day 2 Online Link

https://teams.microsoft.com/l/meetup-join/19%3ameeting_ZjhiODgyNmEtOGYxMy00NWQyLTk5NzQtOGViOGNjY2RhODFi%40thread.v2/0?context=%7b%22Tid%22%3a%22ad2a8324-bef7-46a8-adb4-fe51b6613b24%22%2c%22Oid%22%3a%229a2767cf-5bef-4073-9fe2-59d495252e0e%22%7d

Keynote Speaker - Session 01

Session Moderator **Professor Dr. Mostafa Refat**

• Keynote Speech

Professor Dr. Yasser Mansour

Title: *“Museum Design & Cultural Message: A Catalyst for Change”*

10:00 – 10:45 am

Break 10:45 – 11:00 am

The Architecture of Museums – Session 02

Session Moderators **Professor Dr Hanan Sabry and Professor Dr. Abeer Elshater**

• Papers Presentations

- | | |
|-----------|--|
| Paper 09 | Nouran Khaled , “The Interpretation of Museums Microclimate - The Emergence of New Museum Architecture After the Pandemic”. |
| Paper 11. | Vida Abbasi , “The introduction of a mobile application using gamification for increasing demand and revenue management in museums focusing on small and mid-sized venues: The case study of Milanese Museums”. |
| Paper 07. | Walaa Ismaeel , “Adaptive Re-use of cultural heritage buildings to museums; case study Sabil Mohamed Ali”. |
| Paper 15. | Sara Biscaya , “Museum Architecture Post Covid19 and the role of Digital Transformation”. |
| Paper 26. | Laurent Lescop , “Expanding Museums: new tools and concepts for mediation and virtualization”. |

11:00 – 12:00 pm

Break 12:00 – 12:30 pm

Workshop: Monitoring of Museum Environments – Session 03

Session Moderator **Dr. Nouran Khaled**

• Keynote Speech

Dr. Abd El Razek El Nagar

Title: *“Monitoring of Indoor and Outdoor Museum Environments for Diagnosis of Object Degradation: Case Studies from the Egyptian and British Museums”*

12:30 – 1:15 pm

• Discussion/ Questionnaire

1:15 – 1:30 pm





Break 1:30 –2:00 pm

Keynote Speaker - Session 04

Session Moderator | Professor Dr. Hisham Elkadi

• Keynote Speech

Mrs Ceri Horrocks

Title: *“Building Back Better – How Our Museum Has Weathered the Storm.”*

2:00 – 2:45 pm

Break 2:45 –3:00 pm

Technical Session – Session 05

Session Moderator | Professor Dr. Hisham Elkadi

• Keynote Speech

Mr. Ethan Bellmer

Title: *“Dashboard for Monitoring Object and Visitor Environments “MOVE” in Salford Museum and Art Gallery.”*

3:00 – 3:45 pm

Conference Conclusion

3:45 –4:00 pm



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Building a Sustainable Tourism Infrastructure in a Geographic Cul-de-Sac

Regina Faden, Ph.D.

Historic St. Mary's City Commission

Abstract:

The paper addresses some of the main challenges associated with meeting conflicting environmental, cultural resource, and tourism infrastructure requirements. Historic St. Mary's City is a living history museum located in a largely rural area of the US state of Maryland at the end of a peninsula along the banks of the St. Mary's River, a tributary of the Chesapeake Bay. Its governing board, Historic St Mary's City Commission, recently completed a master planning process that outlines the goals for museum facilities, branding, and wayfinding in preparation for the state's 400th anniversary in 2034. The process identified the museum's primary goal: to create a world-class cultural and recreational destination that attracts a wide audience, offering "a density of experience" onsite to encourage multi-day visits and fuel the local economy. In order to determine whether there will be sufficient demand for these services to create "a density of experience," HSMCC will complete a feasibility study consultation with a professional firm. Decades of research indicate that cultural heritage tourism can be a powerful economic driver; when the local community, government, and businesses are unified in their vision for a development and agree on the potential social benefit to the local economy and community members. This essay examines the benefit of cultural heritage tourism for rural areas and how existing models could be applied to HSMC. With the right investment and mix of activities, HSMC could prove to be a dynamic economic catalyst for its region.

Keywords:

museum, economic development, cultural heritage, tourism, rural development



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Experience Economy and Museum Development in India.

Mark Watson

Design Providence, Melbourne, Australia

Sanmitra Chitte

World University of Design, Delhi, India

Avani Varia

Museums of Ahmedabad, Gujarat,

Abstract:

This paper looks at the Museum environment in India with a focus on development and the need for a stronger understanding of the Experience Economy. With India's rapid rise in world economic rankings and burgeoning middle class, there is a need to develop museums in a way that taps into the tourism and hospitality market economy but more significantly, to represent the Indian Culture and Heritage in a light of contemporary design.

With a strong educational background in European Education through the British Commonwealth connection, a toe hold in international technological advents as a key player in Silicon Valley, California but more importantly a strong need to reconnect with its own culture and interpretations through a globalised lens to meet the desires of the international tourism markets as well as a burgeoning holidaying Indian middle class.

This paper looks to explore this phenomenon through a scoping case study around the LeCorbusier designed museum Sanskar Kendra in Ahmedabad, Gujarat, India. The purpose is to establish key priorities in development as the world moves past the COVID-19 pandemic. Sanskar Kendra, while not a traditional Indian monument, is non the less an important architectural icon internationally and locally which houses the Kite Museum and the Ahmedabad general cultural collection. With little funding directed to the maintenance and upkeep let alone the curating of exhibits, Ahmedabad and India is missing out on tourism opportunities and its economic benefits in a city that is renowned for its heritage and strong design ethos.

The results of this research show a clear desire to achieve worlds best practice, but this is difficult in this early stage of development as India struggles to develop effective administrative and policy platforms to support the experience economy. With Ahmedabad's profile in Heritage and Design a more structured platform for experience design utilising design strategies such as participatory and transitional design are needed.

Keywords:

Cultural Tourism, Culture, Design, Economic Development, Experience Economy



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Innovative display and storage methods for glass negative collections

Ibrahim A. Mohamed Ali

*The Grand Egyptian Museum- Conservation Center
The Ministry of Tourism and Antiquities*

Abstract:

Glass negatives have been widely used since the mid-Nineteenth century, the same time witnessed the early developments of organized archaeological excavations and the dawn of establishing museums in Egypt. Pioneer archaeologists realized the significance of the implementation of the new technology of photography to their work. Some archaeologists have cooperated with professional photographers while others practiced photography themselves to document their excavations and the earliest museum collections. These resulted in creating several collections of glass negatives that cover decades of archaeological and museum work in Egypt. These collections provide very significant documentation of archaeological and museum practice at the time. Glass negatives are very vulnerable to physical damage to their inherent fragility. And often there is a considerable number of broken glass negatives among collections. This poses various challenges for their handling, storage, and display. Also, glass negatives could only be seen clearly through quite close backlighting which represent another challenge for properly displaying glass negatives in exhibitions. This paper focuses on developing some sustainable methods for displaying glass negatives along with some rehousing approaches for safe and secure storage. All approaches were developed and fabricated with proper, locally available materials in Egypt for sustainability and future reproduction. LED lights, cotton-based cardboards, and acrylic sheets (Perspex) were used for the fabrication of the display and storage methods. Approaches were adjusted to be applied on glass negatives from various collections and with various sizes and preservation conditions (intact and broken glass negatives). Developed display methods were successfully employed for the display of glass negatives of prominent photographers from the 19th century like Antonio Beato (1835-1906) and Gabriel Lekegian (1850-1920) at the exhibition “capturing Egypt on Glass” at the Egyptian museum in Cairo in April 2018. storage methods were applied on some glass negatives housed at the archive of the Documentation Centre of Egyptian Antiquities (CEDAE) and the Egyptian museum in Cairo (EMC). Developing proper and sustainable display and storage methods for museum collections is very essential for providing access while preserving collections. The developed display and storage methods could be simply implemented and adjusted to comply with various usages and collections’ conditions in the future.

Keywords: glass negatives, display, storage, handling



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PICTURE

Simple, Accessible Modelling for Showcase Performance

David Thickett, Paul Lankester, Melissa King and Antanas Melinis

Affiliation

Abstract:

Showcases can have many benefits for preventive conservation. The main ones are relative humidity (RH) buffering, reduction of particulate and gaseous pollution and the potential to tightly control a relatively small air volume. The major risk is concentration of internally generated pollutants. Daylight can cause issues with showcases and careful control is required. The factors to consider when planning showcases and their uses impact on architectural practice and design are considered. Showcases allow different conditions to be provided for objects with different requirements in a room, and give very significant energy, cost and carbon savings over air conditioning. Their buffering of RH allows an air-conditioning system to deviate from tight parameters for a period, reducing costs. Developments in measuring air exchange rate (AER) have allowed many institutions to determine this fundamental parameter routinely, and over 500 professionals have been trained in the technique. Some important questions remain about exact AER methodology and they have been explored and the methods adapted for use with showcases. When procuring new showcases, the air exchange rate specification is critical to guarantee performance. Robust procurement policies are required to ensure the showcases meet the specification. Overspecification can lead to much higher costs, so determining the appropriate AER specification is important. When refitting existing showcases, knowing the required AER facilitates the refit. Simple Excel based models have been developed, and extensively tested, to predict the internal environment (RH, nitrogen dioxide, ozone concentration) from the room environment.



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These predictions are essential to allow specification in the wide range of environments encountered and their performance has been investigated. For new cases, stringent materials testing, is by far, the best way to avoid adverse concentration effects. For refitting showcases, a hierarchy of methods and predictions for likely success have been developed for the most commonly reported damaging internal pollutants (acetic and formic acid).

Keywords:

modelling, , pollution, relative humidity, showcase,



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Successful Museums: A comparative analysis framework to Enhance the Museum's Visitors' Experience

Dalia Hafiz, PhD

Al-Ghurair University, Dubai, UAE

Abstract:

Museums represent one of the most impressive structures. They characterize the city's identity and are one of the first destinations for tourists and cities' visitors. The experience these buildings offer their visitors is significant experience not only to adequately introduce the visitors to the information provided but also act as a representative of the art, history, and culture of the city or country. The quality of the building has a strong effect on delivering the information and getting the visitors to immerse themselves in the provided exhibits. This paper aims at examining the key factors of the journey success in museum spaces through the examination of several successful international museum case studies over time. The case studies' potentials start from how the buildings are situated within the city, the site approach, the buildings' façades, and materials selections, moving to the visitors' circulation, interior finishes, and environmental considerations. The interior environment has a strong effect on the journey, including lighting and thermal conditions, air quality, and transition through spaces. The paper also explored the story behind the buildings which gets conveyed by the building's journey and maintaining the visitors engaged throughout their visit. Transitioning from one exhibit to the other and one interior/exterior environment condition is a key factor of the success of the museum. The paper concludes with a comparative analysis with a framework for design considerations and guidelines. The conducted framework can be considered a tool for students and designers to consider when planning for museum design.

Keywords: Museums Design, Museum success, Museums Case Studies, Visitor experience



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Museums' D-Light The role of daylight in shaping futures of museums

Professor Hisham Elkadi

University of Salford-UK

Abstract:

250 to 300 Word.

Museums have played a major role in documenting human history. Both display of exhibits and the sphere that contains them have dramatically changed in the last two decades. Many factors have led to such transformation. These factors ranged from environmental consideration of monitoring indoor spaces, technology of display and interaction, to shift in visitors' expectations. The use of daylight becomes a key ingredient in the design of new museums. Far from being the environmental nemesis of sensitive exhibits, daylight becomes a tool to design and manage display of exhibits and improve visitors' experience. Looking at the history of this transformation in the use of daylight, this paper examines the role of daylight in the design and environmental management of contemporary museums. The paper provides a critical historical review of the use of daylight in museums. The paper discusses how recent research in daylight has enabled the use of daylight in the display of sensitive artifacts. Examples are given of contemporary design and best practices of museums in different parts of the World. The paper critically examines the current glazing technologies to control indoor daylight and provides research trends to improve indoor museum environments for both exhibits protection and visitors experience

Keywords:

Museums, Architecture, Design, Daylight, Energy



PICTURE

Visitor Comfort Versus Conservation Principles: The Conversion of Historic Buildings into Museums And Case Studies from Turkey

Zeynep Aygen

Mimar Sinan Fine Arts University, Istanbul, TURKEY

Abstract:

Historic buildings and heritage sites are not only distinctive landmarks but also objects that are visited, mostly for recreational and academic purposes, and they have their own stories. While some of these buildings are museums without exhibition spaces, there are a number of other examples that host various exhibitions. Sometimes these buildings are used to combine exhibitions about the history of the buildings and the objects inside them. As the title of this paper suggests, the focus of this paper is to explore the dichotomy between contemporary conservation discourse, which is based on minimal intervention, and the “rules” of contemporary museum and exhibition design. If a historic building was originally designed as a museum, it is easier to adapt it for the needs of visitor. However, there are several other types of museums, such as historic castles, towers, palaces, school buildings, archaeological sites and even natural heritage museums ,that need to confront the problems of applying new technologies and regulations that are not present in or compatible with the original building. As the world is trying to manage climate change and as sustainable design principles are becoming more and more important, the process of conserving historic buildings needs to align with these principles. The aim of this paper is to discuss some solutions based on sustainable design principles that can be used in converting historic buildings to museums and to highlight some interesting case studies from Turkey.

Keywords:

Building History, Converted Buildings, Object History, Visitor Comfort



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PICTURE

A review on objects' preservation and visitors' thermal comfort within museums

1 Inji Kenawy, 2 Karen Fielder

*1,2 School of Architecture, University of Portsmouth,
United Kingdom*

Abstract:

Museums play a significant role in preserving and showing human culture. Their environmental conditions are considered crucial in preserving their collections as well as ensuring a pleasant experience for their visitors. Ensuring a stable indoor environment is essential to the survival of museum objects and collections. This could be achieved by providing a well-maintained building with efficient environmental facilities. Comfort is also one of the crucial elements that affect the visitors' overall experience and accordingly the museums' success. Recently, finding this balance between reducing the energy demands without endangering the different collections as well as maintaining a thermally comfortable environment for visitors is one of the main challenges for museums. This paper focuses on the conflict and harmony of the environmental requirement recommended to preserve the museums' objects and provide a comfortable experience to their users. It provides a review of the literature of the indoor environmental requirements within museums, considering both the objects and visitors. The findings are to highlight the different requirements and propose a balanced approach to managing them.

Keywords:

Museums management, Human thermal comfort, preservation of objects, indoor environmental conditions.



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Indoor Air pollutants in Museums: Identification and Impact on Artefacts

Mohammed ELADL, Arch.meladl@gmail.com

Ain Shams University, Faculty of Engineering, Egypt

Yasser MANSOUR, yasser_mansour@eng.asu.edu.eg

Ain Shams University, Faculty of Engineering, Egypt

Hanan SABRY, hanan_sabry@eng.asu.edu.eg

Ain Shams University, Faculty of Engineering, Egypt

Mostafa REFAT, mostafa_ismail@eng.asu.edu.eg

Ain Shams University, Faculty of Engineering, Egypt

Abstract:

Museum buildings are of great importance to humanity. They represent a preservation environment to all the artefacts on both indoor and outdoor scales. Over the past decades, museum buildings design parameters; from site selection to openings and halls' design, have been found to play an important role in the increase of indoor air pollutants concentrations. This paper aims at helping architects and museum curators to identify the impact of museum indoor air pollutants on preserved artefacts. A literature review is conducted on several studies in terms of museum buildings, indoor air quality and their impact on preserved artefacts. The study indicates that the site selection and context for museums has an impact on the variety of existing pollutant categories, whereas the building envelope was the main cause of pollutants leakage from outdoor to the museum indoors. Pollutants concentrations on the indoor are significantly higher than outdoor concentrations indicating that indoor sources are of crucial impact to indoor museum environments if not handled well.

Keywords: Artefacts, HVAC, Indoor Air pollutants, Museums.



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PICTURE

The Complexity of Daylighting Design Practice in Museum Environment

Sura AL-Maiyah 1, Karen Fielder 2

*1 School of Science, Engineering and Environment,
University of Salford, United Kingdom*

*2 School of Architecture, University of Portsmouth,
United Kingdom*

Abstract:

In our recent literature review of research papers on the management of microclimates in museums published over the last twenty years it was evident that the emphasis was primarily on thermal conditions with less concern for the visual environment. However, lighting conditions and in particular daylighting is important in varying degrees both to the impact that it has on the preservation of the artefacts and to the experience of visitors. This paper presents a more focused literature review which traces developments in lighting studies for museums over the last thirty years. It investigates shifts in scholarly interest in museum lighting conditions and the extent to which natural lighting is addressed alongside other factors. It also examines regulations and standards for lighting in museums and how these are applied in practice to create appropriate environmental conditions and to enhance the visual experience. Developments in lighting technologies have provided a focus for scholarly interest in museum lighting where it is understood to mitigate some of the harmful effects of natural light on certain artefact types. Both daylight and artificial lighting can be manipulated by the creative designer as interpretive tools and for aesthetic effect. Many historic museum and gallery buildings were designed with the management of natural light in mind, and the deleterious effects of daylight particularly on painted surfaces have been long understood. Subsequent developments in the field of museum lighting often led to the refurbishment of historic gallery spaces to largely block natural light. Designers of contemporary museums must balance the complexities of artefact preservation, aesthetics, and visual comfort in their schemes, mindful of the appropriate regulations and standards.



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Specific case studies allow us to examine these trends in the introduction of lighting in museum galleries and particularly developments in the use of daylighting in historic and contemporary museum buildings.

Keywords:

Museums, Daylighting, Visual environment, Lighting technologies, Standards



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The Interpretation of Museums Microclimate The Emergence of New Museum Architecture After The Pandemic

Nouran Khaled Morsi

Associate Professor in the ICHP Environmental Architecture & Urbanism Program, Department of Architecture, Faculty of Engineering, Ain Shams University, Cairo, Egypt

Board Member ICOM-ICMAH

International Committee for Museums and Collections of Archaeology and History (2019-2022).

Abstract:

Museums have experienced a paradigm shift in the early twentieth century. Their role has changed from a historic institute for collecting, conserving and researching into an educational and social institute to serve the public. In the twenty first century, museums have adapted to changing visitor needs and experience, which constitutes the way that every individual visitor perceives a museum visit. Museums as cultural heritage keepers are considered as a specific type of buildings, which must meet very rigorous requirements regarding its indoor environment. As a result of the growing concern about the consequences of climate change on conservation policies, the criteria for setting the levels of environmental parameters must achieve the proper conditions for the preservation of the displayed artefacts and conditions for the comfort of visitors. Recently, the World Health Organization (WHO) released new guidelines on virus transmission in indoor spaces, in addition to new indoor environmental guidelines for public spaces, including adequate air circulation, the use of natural light, and preferred relative humidity. Although there is still much to learn about COVID-19, it is clear that the pandemic has significant implications for how museum buildings will function and function to serve museum staff and visitors alike. The COVID-19 pandemic is changing the equations that architects are using to achieve the required indoor environmental condition for museum spaces, which will also affect the whole architectural design of the museum building. Inadequate indoor environment conditions and its performance will affect not only exhibits, but also its visitors. In this regard, the paper investigates the effect of the new indoor environmental quality requirements and strategies for public spaces because of the current pandemic on the architectural design of museum spaces. This will be analysed thematically and interpretively the latest guidelines for public spaces in order to conclude the significant changes that shall take place in the museums design and management, which are considered a challenge to the museums architects and professionals to achieve.

Keywords: *Museum Architectural Design, Museum Microclimate, COVID-19 Pandemic, Health Crisis.*



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The introduction of a mobile application using gamification to increase demand and revenue management in museums, focusing on small and mid-sized Milanese Museums

Vida Abbasi

School of Architecture, Politecnico di Milano, Milan, Italy

Abstract:

Given that by the year 2030, over half of the world population will adopt merely online and internet-based materials (Euromonitor, 2015) the tourism and hospitality sector is to inevitably integrate Information and Communication Technologies (ICT) within their service design. The application of gamification in the tourism industry is nothing new; nevertheless, it has not been broadly utilized. This paper seeks to propose a mobile platform using gamification with a focus on the pre-visit museum visiting experience. Additionally, this platform deploys a gamified mechanism to make the visit to the museums [in Milan] more effective for the local visitors and more efficient for the providers; that is to say, it strikes a balance between different museum visits in terms of the number of visitors focusing on small and mid-sized venues—the venues that are more susceptible to the financial crisis. Considering museum visiting as a product, what makes this work particular amongst other similar platforms is the focus on the supply chain's upstream as its main component. In fact, it is an attempt to adopt efficiency assessment solutions to find out the museums with financial issues, rank them, and ultimately give personalized suggestions on destinations to the users with incentives based on the museums' financial status. Direct communication with museums of interest was picked as the main methodology to gather the required numerical data to calculate museums' financial performance. Essentially, a threefold approach is followed: First resolving the problem of undertourism in small and mid-sized museums through the generation of higher income (upstream), second diminishing the negativities of overtourism such as congestion in the case of famous large museums (upstream and downstream), and just as importantly, enhancing the user experience, i.e., UX (downstream) through means of novel ICT, i.e., a gamified platform with access through smartphones.

Keywords: gamification, overtourism, service design, undertourism, user experience(UX)



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An integrated thinking approach for transforming a Cultural heritage building into a museum; review and a case study

Walaa S.E. Ismaeel

The British University in Egypt

Abstract:

This study discusses the transformation of cultural heritage buildings (CHB) into museums, the case of Sabil Mohamed Ali in El Muiz Street turning into The Egyptian Textile Museum. This transformation process carries along several benefits and challenges. CHBs represent a significant typology of particular architectural as well as urban influences. They add value when standalone, and even more when hosting museum artefacts. Nevertheless, this functional transformation often comes at a price. Hence, this study uses the science of systems dynamics to highlight related issues in this regard. These are not only attributed to the building in isolation but should extend beyond that to consider its relation with its surrounding context. Existing synergies and tradeoffs were explored through cause and effect analysis of feedback loops focusing on energy efficiency, materials selection and indoor environmental quality. These have a substantial progressive effect on building performance. This requires careful intervention scenarios based on a comprehensive understanding of the values carried by individual components as well as by the whole system. Finally, the paper develops a structured model showing interrelations and their unexploited intrinsic effects. This presents a set of recommendations for decision-makers, heritage conservationists and experts for developing integrated approaches for heritage preservation in the context of long-term development.

Keywords: Adaptive re-use, Cause and effect analysis, cultural heritage buildings, museums, Sabil buildings, Systems integration



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Museum Architecture Post Covid19 and the role of Digital Transformation

S.Biscaya, S.biscaya@salford.ac.uk

University of Salford, UK

Abstract: Architecture and museum design has been object of several studies given their historical and cultural relevance. They host the past, the present and the future of civilisations through artifacts and other objects of artistic, cultural, historical, or scientific importance.

The way museums are experienced has changed significantly with the digitised era: today there are applications to visit museums, interactive exhibitions, and virtual museums. Independently of their nature, they provide a unique experience to their users through the content and cultural promenade they offer, buildings of architectural significance, they are designed to engage the visitor on a journey of discovery that tells a story through time and space.

COVID19 pandemic brought new challenges to museums with social distancing restrictions but so has the environmental challenge of climate change and the need for energy efficient buildings. The first poses significant societal changes which cannot be fully assessed at present and the second requires highly efficient energy systems to maintain buildings, as well as preserve their contents which represents a significant use of energy and resources.

This paper aims to explore museum design and architecture post COVID19 and the role of digital transformation in the experience these can provide. The focus is to engage and enhance the experience of museum visitors in the digital era.

Through a systematic review this paper gathered empirical evidence on the impact of COVID19 on museums design and architecture, using the PRISMA method (Preferred Reporting Items for Systematic Reviews and Meta-Analyses).

The findings show that key features' museum design should consider in improving their performance are interlinked and focus on, social dimension, spatial configuration, digital technologies, and management. These principles can apply to both new and existing museums independently of their type and nature and are of use to architects, museum managers and curators as well as academics.

Keywords: Museum Architecture, Museum visitors' experience, Museums Post COVID19, Museums Technology, Digital transformation



Expanding Museums: new tools and concepts for mediation and virtualization

Laurent Lescop,

Ensa Nantes, CRENAU AAU-UMR CNRS 1563, Fr.

Abstract:

Museums have always had a strong territorial identity: the name of a museum may often be used to identify the city in which it is located, as well as the objects kept there. Museums, on the other hand, have been attempting to "export" themselves for some time, either physically or online. This tendency, which is being exacerbated by the Covid epidemic, generates a slew of new problems, which will be addressed in this article. This evolution is occurring in the context of the emergence of new museum forms that are unrelated to the conservation, study, and mediation of collections. The production of facsimiles is encouraged by the conservation of vulnerable locations; museums without artifacts encourage sensitive encounters; more playful versions resemble amusement parks; and ultimately, the potential provided by virtualisation of collections and settings enable distant visits. As a result, new technologies are frequently at the centre of these suggestions, and they appear to alleviate a variety of problems. However, one must be cautious and nuanced, and each answer must be tailored to each scenario. To attempt to tackle this broad subject, we will examine content virtualisation approaches by tracing the concepts' history, then examining the disparities in stakes across sites and objects, and finally questioning the cultural determinisms that the new technologies bear. To sum up, we will offer a dual idea, heritage and emergence, which allows us to explore the real world in relation to its digital clone.

Keywords: Museum, Ambiances, Virtualization, Mediation, Virtual Visits, Tourism



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